



2. SITE BACKGROUND

2.1 INTRODUCTION

This section presents information obtained from SSI work plan preparation, the site representative interview, and a reconnaissance inspection of the site.

2.2 SITE DESCRIPTION

The Painesville Plant site is the location of a former processing plant located on a parcel of land approximately 35 acres in size. The site is located in Painesville Township in Lake County, Ohio (R.8W., T.11N.). Most of the buildings on-site have been demolished and covered with clay from a nearby clay pit. The site is bordered by Lake Erie on the north and industrial areas on the other three sides. The site is located east of 1000 Second Street in Fairport Harbor, Ohio (see Figure 2-1 for site location).

Cont. map to
City Comp. 10

A 4-mile radius map of the Painesville Plant site is provided in Appendix A.

2.3 SITE HISTORY

The Painesville Plant site is currently owned by Maxus Energy Corporation, which purchased the site from Diamond Shamrock Chemical Company in 1986. The plant was originally built in 1914 as Diamond Alkali Company, which produced soda ash for Pennsylvania Plated Glass (PPG). PPG used the soda ash as part of their glass manufacturing process. During the mid 1960s a cement kiln was built on-site. A chlorine plant was also built on-site during the 1960s because of easy

access to sodium chloride, a waste product of the soda ash plant. The chlorine plant produced chlorinated paraffins, used as an additive in the formation of polyvinyl chloride. The exact dates of operation for the cement kiln and chlorine plant are not known (Dugas 1990).

In 1967 Diamond Chemicals (formerly Diamond Alkali Company) and Shamrock Oil and Gas merged, forming Diamond Shamrock Chemical Company. Some of Diamond Chemicals's holdings were also sold to Oxidental Chemicals, although the Painesville Plant site was not included in the sale. In 1986, Maxus Energy Corporation bought out Diamond Shamrock Chemical Company. Shortly afterward the site was divided into parcels and some parcels were sold to Standard Machine Equipment (SME). At the time of purchase, SME was planning to demolish the buildings on-site and to salvage and sell the steel used in the buildings. Because of the collapse of the steel industry, these plans were put on hold. Eventually, though, SME and Maxus Energy Corporation agreed to demolish the buildings. According to Paul Dugas of Maxus Energy Corporation, at the time of demolition transformers containing oil with PCBs were discovered on-site. SME workers drained the transformers into drums, and removed the drums. The buildings were then demolished, and the steel was recovered and sold. The concrete foundation was then broken and the entire site covered with clay from a clay pit on nearby property. The cover was graded to drain toward Lake Erie. An unsuccessful attempt to vegetate the site was then made. Attempts are currently being made to successfully vegetate the site. No regulatory related actions have been taken at the site (Dugas 1990).

also determined sampling locations during the reconnaissance inspection. FIT was accompanied by the site representative during the reconnaissance inspection.

Reconnaissance Inspection Observations. The Painesville Plant site is located precisely on the border between Fairport Harbor and Painesville, Ohio. The site itself is in Painesville, while the old administration building is in Fairport Harbor.

The site consists of an empty lot with a clay cover and sparse vegetation. The site is bordered on the south by FP & P railroad tracks and on the north by Lake Erie. The east side of the site is bordered by an industrial area. On the west end of the site is the old administration building and a building that has been partially demolished. A fence with a locked gate borders this part of the site on its east, west, and south sides. At the southwest side of the site are two warehouses within which some small businesses currently operate. These warehouses are outside the fence that surrounds the empty lot; however, because they are part of what was the original on-site plant building, they must be considered on-site (see Figure 3-1 for site features).

Accessibility

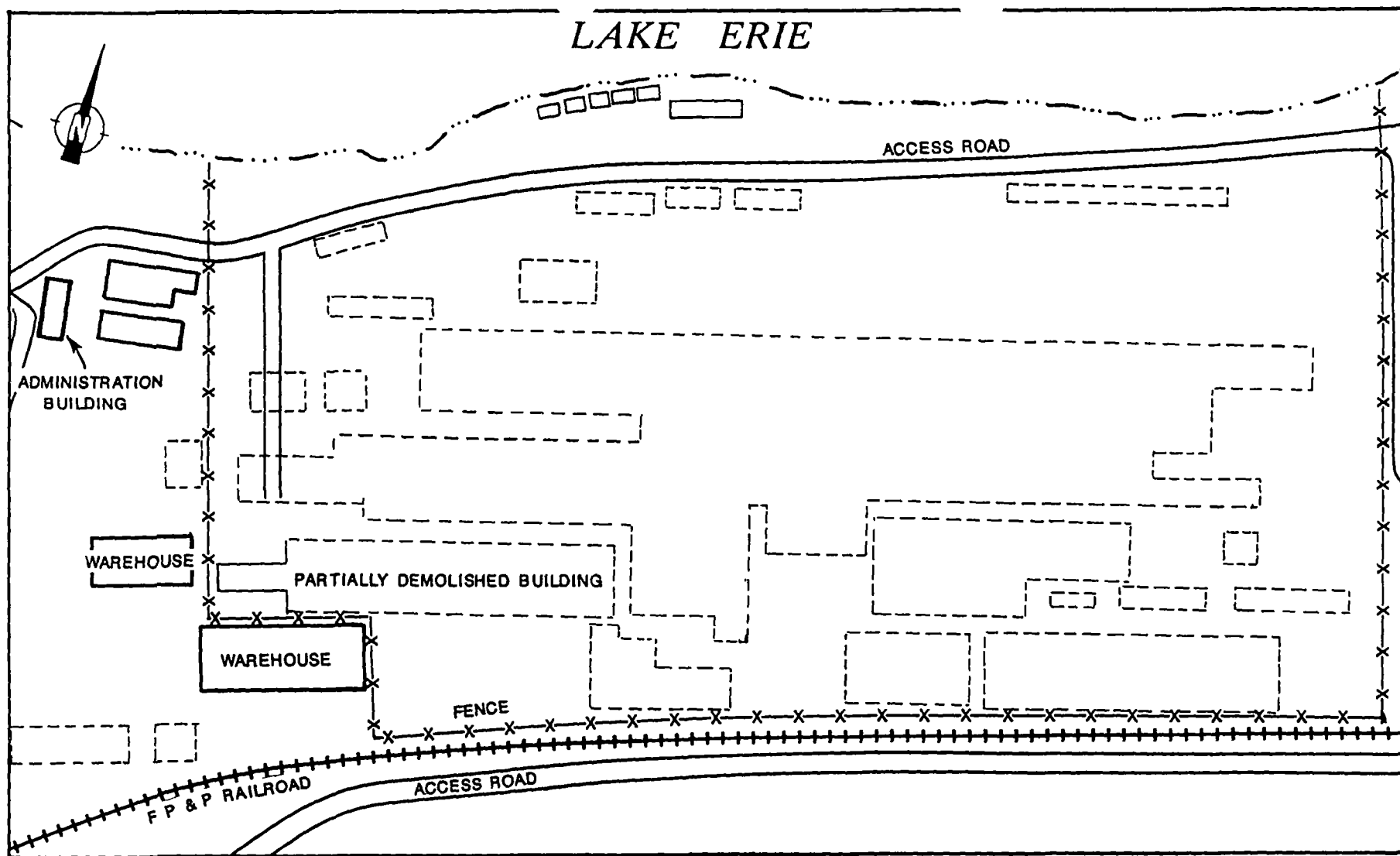
The north end of the site was bordered by a steep grade of approximately 50 feet sloping down to Lake Erie. An access road leads onto the site in the northwest corner. The access road runs parallel to the lakeshore, and leads off-site in the northeast corner. A second access road leads south from this road toward the warehouses, running parallel to the fence on the west side of the site.

FIT photographs from the SSI of the Painesville Plant site are provided in Appendix C.

3.4 SAMPLING PROCEDURES

Samples were collected by FIT at locations selected during the reconnaissance inspection to determine whether U.S. EPA Target Compound List (TCL) compounds or Target Analyte List (TAL) analytes were present at the site. The TCL and TAL are included with corresponding quantitation/detection limits in Appendix D.

On April 3, 1990, FIT collected five surface/subsurface soil samples, including one potential background surface soil sample. Portions



SCALE

0 200 400 600 800 1,000 FEET

LEGEND

---- AREAS OF DEMOLITION

FIGURE 3-1 SITE FEATURES

5. DISCUSSION OF MIGRATION PATHWAYS

5.1 INTRODUCTION

This section presents discussions of data and information pertaining to potential migration pathways and targets of TCL compounds and TAL analytes that are possibly attributable to the Painesville Plant site.

The five migration pathways of concern discussed are groundwater, surface water, air, fire and explosion, and direct contact.

5.2 GROUNDWATER

A potential for TCL compounds and TAL analytes to migrate from the Painesville Plant site to groundwater in the vicinity of the site does exist. This potential is based on the following information. TCL compounds and TAL analytes have been detected in on-site soil samples, including the PCB Aroclor 1254 (9,600 µg/kg), fluoranthene (1,300 µg/kg), pyrene (1,200 µg/kg), chrysene (1,200 µg/kg), mercury (1.4 mg/kg), chromium (730 mg/kg), and benzo[b]fluoranthene (1,600J µg/kg) (definition and interpretation of the J qualifier are provided in Table 4-1). The presence of Aroclor 1254 can be attributed to the site because it is known that at one time drums containing PCB-contaminated oil were removed from the site.

The potential is also based on the geology of the area of the site. Lake County, Ohio, is characterized by three physiographic units: a 2- to 5-mile wide lake plain adjacent to Lake Erie that consists of a flat, smooth region of former lake bottom and old beach lines; an approximately 2-mile wide escarpment south of the lake plain; and the Allegheny

Waste chans. 0

Plateau. These physiographic units form horizontal bands parallel to Lake Erie. The site is located in the lake plain unit (White 1980).

The site is underlain by sand and gravel beach deposits ranging in thickness from 7 to 50 feet and by discontinuous clay and sandy clay lenses ranging from 14 to 26 feet in thickness (see Appendix E for well logs of the area of the site).

The bedrock underlying these surficial deposits consists of impermeable shale, with lesser amounts of silty sandstone of Devonian age (White 1980). Depth to bedrock ranges from 13 feet to more than 50 feet. The contour of the bedrock surface, established long before the current surficial sediments were deposited, closely parallels that of the lakeshore: both the bedrock surface and the land surface rise steadily away from the lake toward the southeast (Lamborn 1951). Regional groundwater flow in Lake County, Ohio, is controlled primarily by the impermeable bedrock surface; thus, groundwater is presumed to flow toward Lake Erie from the highlands of the Allegheny Plateau.

Well logs of the area of the site indicate that private wells from which drinking water is obtained are screened in the sand and gravel deposits, and sometimes finished in the shale. The well nearest to the site is 1 1/2 miles away. The sand and gravel layers are considered to be hydraulically connected and constitute the aquifer of concern (AOC). The depth to the AOC ranges from 10 to 20 feet. The AOC is a poor aquifer, with well yields of 0 to 10 gallons per minute. The majority of Lake County's water supply is obtained from Lake Erie (Dunn and Marshall 1974).

The potential targets of groundwater contamination include the approximately 1,100 persons who reside within a 3-mile radius of the site and who obtain drinking water from private wells. This figure was calculated by using United States Geological Survey (USGS) topographic maps to count the number of houses located within a 3-mile radius of the site that are not served by the municipal water systems (USGS 1960, 1960a, 1963). This number was then multiplied by a persons-per-household value of 2.93 for Lake County, Ohio (U.S. Bureau of the Census 1982).

TARGET

A

5.3 SURFACE WATER

A potential does exist for contaminants from the site to migrate to surface water in the area based on the following information.

- The PCB Aroclor 1254 (9,600 µg/kg) has been detected on-site.
- The site is adjacent to the shore of Lake Erie, with the general slope being toward the lake.

Lake Erie is used for recreational purposes and as the major source of drinking water in the area. The nearest intakes from the lake are just over 1 mile away from the site, and serve approximately 12,000 to 13,000 homes (Mundie 1989). Due to the very high toxicity of the compound detected (Aroclor 1254), and the high concentration (9,600 µg/kg) at which it was detected, the potential for population targets to be affected should be considered. The number of persons who use Lake Erie for recreation is not known.

TARGETS

5.4 AIR

A release of TCL compounds or TAL analytes to the air was not documented during the SSI of the Painesville Plant site. During the reconnaissance inspection, FIT site-entry instruments (OVA, hydrogen cyanide detector, and radiation monitor) did not detect levels above background concentrations at the site. In accordance with the U.S. EPA-approved work plan, further air monitoring was not conducted by FIT.

Only a small potential exists for TCL compounds and TAL analytes to migrate from the site via windblown particulates because the majority of the site has been covered with clay.

The population within a 4-mile radius of the site potentially affected by a release of TCL compounds and TAL analytes to the air is approximately 23,829 persons. This population was calculated by counting houses within a 4-mile radius of the site on USGS topographic maps (USGS 1960, 1960a, 1963) and multiplying this number by a persons-per-household value of 2.93 for Lake County, Ohio (U.S. Bureau of the Census 1982).

5.5 FIRE AND EXPLOSION

According to federal, state, and local file information reviewed by FIT, and an interview with Dugas, Senior Environmental Engineer of Maxus Corporation, no documentation exists of an incident of fire or explosion at the site (Dugas 1990). According to FIT observations and site-entry equipment readings, no potential for fire or explosion existed at the site at the time of the SSI.

5.6 DIRECT CONTACT

According to federal, state, and local file information reviewed by FIT, observations made during the SSI, and the interview with the site representative, no incidents of direct contact with TCL compounds or TAL analytes at the Painesville Plant site have been documented.

A potential does exist for persons to come into contact with TCL compounds and TAL analytes at the site. That potential is based on the following information.

- TCL compounds were detected in a soil sample collected on-site.
- Several workers are employed in the small garage areas adjacent to the site; the exact number of employees is not known.
- Lake Erie is adjacent to the site, and a park lies within 1 mile of the site; the number of persons who use these areas for recreational purposes is not known.
- Access to the site from the Lake Erie side is not restricted by a fence.

The population within a 1-mile radius of the site potentially affected through direct contact with TCL compounds and TAL analytes at the site is 2,518 persons. This population was calculated by counting



POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 5 - WATER, DEMOGRAPHIC, AND ENVIRONMENTAL DATA

I. IDENTIFICATION

01 STATE 02 SITE NUMBER

OH D980820658

II. DRINKING WATER SUPPLY

01 TYPE OF DRINKING SUPPLY
(Check as applicable)

SURFACE WELL
COMMUNITY A. ☒ B. ☐
NON-COMMUNITY C. ☐ D. ☒

02 STATUS

ENDANGERED AFFECTED MONITORED
A. ☐ B. ☐ C. ☒
Unknown D. ☐ E. ☐ F. ☐

03 DISTANCE TO SITE

A. $\sim 1\frac{1}{2}$ (mi)
B. $1\frac{3}{4}$ (mi)

III. GROUNDWATER

01 GROUNDWATER USE IN VICINITY (Check one)

☐ A ONLY SOURCE FOR DRINKING ☒ B DRINKING
(Other sources available)
COMMERCIAL, INDUSTRIAL, IRRIGATION
(No other water sources available)
☐ C COMMERCIAL, INDUSTRIAL, IRRIGATION
(Limited other sources available)
☐ D NOT USED, UNUSEABLE

02 POPULATION SERVED BY GROUND WATER ~ 1100

03 DISTANCE TO NEAREST DRINKING WATER WELL > 3 (mi)

04 DEPTH TO GROUNDWATER

$10-20$ (ft)

05 DIRECTION OF GROUNDWATER FLOW

North

06 DEPTH TO AQUIFER
OF CONCERN

$10-20$ (ft)

07 POTENTIAL YIELD
OF AQUIFER

Unknown (gpd)

08 SOLE SOURCE AQUIFER

☐ YES ☒ NO

09 DESCRIPTION OF WELLS (Including usage, depth, and location relative to population and buildings)

See Section 5.2 in narrative

10 RECHARGE AREA

☒ YES COMMENTS
☐ NO

Through Percolation
of precipitation

11 DISCHARGE AREA

☒ YES COMMENTS
☐ NO

Discharge to Lake Erie

IV. SURFACE WATER

01 SURFACE WATER USE (Check one)

☒ A. RESERVOIR, RECREATION
DRINKING WATER SOURCE ☐ B. IRRIGATION, ECONOMICALLY
IMPORTANT RESOURCES ☐ C. COMMERCIAL, INDUSTRIAL ☐ D. NOT CURRENTLY USED

02 AFFECTED/POTENTIALLY AFFECTED BODIES OF WATER

NAME

AFFECTED

DISTANCE TO SITE

Lake Erie

☐

adjacent

(mi)

Grand river

☐

adjacent

(mi)

V. DEMOGRAPHIC AND PROPERTY INFORMATION

01 TOTAL POPULATION WITHIN

ONE (1) MILE OF SITE

A. 2518
NO. OF PERSONS

TWO (2) MILES OF SITE

B. 12914
NO. OF PERSONS

THREE (3) MILES OF SITE

C. 18834
NO. OF PERSONS

02 DISTANCE TO NEAREST POPULATION

$\sim 1/4$ (mi)

03 NUMBER OF BUILDINGS WITHIN TWO (2) MILES OF SITE

Unknown

04 DISTANCE TO NEAREST OFF-SITE BUILDING

$< 1/4$ (mi)

05 POPULATION WITHIN VICINITY OF SITE (Provide narrative description of nature of population within vicinity of site e.g., rural, village, densely populated urban area)

The population in the area is mostly urban. With the town of Painesville, Painesville on the lake and Fairport Harbor all within 1-2 miles of The site.



POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 5 - WATER, DEMOGRAPHIC, AND ENVIRONMENTAL DATA

I. IDENTIFICATION

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OH D980820658

VI. ENVIRONMENTAL INFORMATION

01 PERMEABILITY OF UNSATURATED ZONE (Check one)

☐ A $10^{-8} - 10^{-6}$ cm/sec ☐ B $10^{-4} - 10^{-6}$ cm/sec ☐ C $10^{-4} - 10^{-3}$ cm/sec ☒ D GREATER THAN 10^{-3} cm/sec

Sand & Gravel

02 PERMEABILITY OF BEDROCK (Check one)

☐ A IMPERMEABLE (Less than 10^{-6} cm/sec) ☒ B RELATIVELY IMPERMEABLE ($10^{-4} - 10^{-6}$ cm/sec) ☐ C RELATIVELY PERMEABLE ($10^{-2} - 10^{-4}$ cm/sec) ☐ D VERY PERMEABLE (Greater than 10^{-2} cm/sec)

Shale

03 DEPTH TO BEDROCK

13 - 50 (ft)

04 DEPTH OF CONTAMINATED SOIL ZONE

Unknown (ft)

05 SOIL pH

Unknown

06 NET PRECIPITATION

6 (in)

07 ONE YEAR 24 HOUR RAINFALL

2.2 (in)

08 SLOPE
SITE SLOPE

3 - 5 %

DIRECTION OF SITE SLOPE

North

TERRAIN AVERAGE SLOPE

3 - 5 %

09 FLOOD POTENTIAL

TE IS IN Unknown 1 YEAR FLOODPLAIN

10

N/A

☐ SITE IS ON BARRIER ISLAND, COASTAL HIGH HAZARD AREA, RIVERINE FLOODWAY

11 DISTANCE TO WETLANDS (5 acre minimum)

ESTUARINE

A _____ (mi)

OTHER

B. 1 1/2 (mi)

12 DISTANCE TO CRITICAL HABITAT (of endangered species)

50 ft

ENDANGERED SPECIES Indiana Bat, Piping Plover

13 LAND USE IN VICINITY

DISTANCE TO

COMMERCIAL/INDUSTRIAL

A Adjacent

(RESIDENTIAL AREAS) NATIONAL/STATE PARKS,
FORESTS, OR WILDLIFE RESERVES

B 1/4 (mi)

AGRICULTURAL LANDS
PRIME AG LAND AG LAND

C Unknown (mi) D Unknown (mi)

14 DESCRIPTION OF SITE IN RELATION TO SURROUNDING TOPOGRAPHY

See Appendix A

VII. SOURCES OF INFORMATION (See specific references, e.g. state files, sample analysis, reports)

USGS Topographic Map.

E: E Fit Files

E: E FIT Site inspection logbook

check in out

C

D

E